

Investigating Risk and Return of Selected Companies in Various Sectors in BSE-SENSEX

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ABSTRACT

In the recent times, capital markets are characterized by fluctuations in returns of companies belonging to various sectors. Stocks of few companies tend to be more tandem with that of the market. Investors are facing difficulty in making informed decisions due to high volatility in financial markets. This paper attempts to throw light on the intricacies of risk and return while investing in companies belonging to various sectors in BSE-SENSEX. In this context, Six companies were selected from Automobile, Metal, Consumer goods, IT, Pharmaceutical and Financial sectors. The outcome of the study has provided evidence that the returns of TCS, Sun Pharma and ITC are higher during the study period and are less volatile. The stock returns of Tata Motors, HDFC and Coal India have been lower due to greater volatility and higher levels of systematic risk inherent in them compared to other sector stocks.

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INTRODUCTION

Investors expect a certain level of returns while investing in various stocks in capital markets. Due to high volatility in capital markets, there exists disequilibrium between the returns expected and those realized. There is an impending need to analyze the risks inherent in various types of investment. A trade-off between risk and return must be made in order to earn higher returns in the purview of volatile markets. Risks can be classified into systematic and unsystematic risk. Systematic risk cannot be diversified as it relates to market returns. Whereas, Unsystematic risk can be diversified by improving the operational efficiency of a firm. This study concentrates on systematic risk as measured by

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beta and the relationship between return. Sangeetha and Dheeraj (2007) in their study analysed the risk return relation using market and accounting based information. They found financial risk to have a significant influence and captured the market effectively compared to accounting information.

1.1 Documenting Return and Risk

The rate of return is actual return that an investor receives during the period of holding a security. It is measured by the difference in the price of the security between the beginning and end of the holding period expressed as a percentage of the purchase price of the security at the beginning of the holding period. The general equation for calculating the rate of return is shown below:

$$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$$

Where,

R =Rate of return

P_t =Price of the security at time't' i.e., at the end of the holding period.

P_{t-1} =Price of the security at time't-1' i.e., at the beginning of the holding period.

D_t = Dividend or Income receivable from the security at time 't'.

It is usually stated as an annual percentage for making it feasible to compare it with other security's return. Risk and return are two terminologies with greater association in investments. Investors tend to make a trade-off between these in order to earn higher profits. Risk is the element of uncertainty which signifies the prospects of actual return deviating from the expected one.

1.1.1 Measures of Risk

A security's risk can be measured using standard deviation, variance of returns and Beta. Standard deviation measures by how much returns deviate from the average return. It is the square root of the average of squares of deviations of the observed returns from their expected value of return. The square of standard deviation is called variance. Variance of security returns signifies the average value of the squares of deviations of the observed returns from the expected value of return.

1.1.2 Systematic Risk - Coefficient of Beta

Systematic risk signifies aggregate market risk. It is that portion of total risk which could not be diversified. It is measured by Beta. Beta Coefficient is represented by the Greek letter Beta (β) which measures the market risk, undiversifiable risk of a stock in relation to the market. It measures the volatility of an asset. Beta is calculated by the equation given below.

$$\text{Beta } (\beta) = \text{Cov } (R_m, R_s) / \text{Var } (R_m)$$

Where,

R_m = Market return; and **R_s** = Security's return

Beta is used to measure the security's systematic risk. It is calculated by dividing the covariance of return between the security and the market divided by the variance of market return. If the beta is positive, it means that the stock moves in tandem with the market and greater than one beta value is depicted by aggressive stocks which respond proportionately higher compared to the market. Stocks with less than one beta are less volatile. Those with a value of beta closer to zero are less risky as there is no market risk.

1.2 Literature Review

Rao and Jose (1996) analysed the validity of CAPM in Indian context and the results revealed greater relevance of CAPM in valuation of shares in India. **Dhankar & Kumar (2006)** investigated the existence of a significant relationship between portfolio risk and return and emphasized a positive association between equity returns and various risk variables. **Vij, Madhu and Tamimi, Mohammad (2010)** investigated the trade off between risk and return, particularly systematic risk and the significance of CAPM in the context of Indian stock market. The results were satisfactory and held CAPM to have a greater explanatory power on systematic risk. These results were quite contradictory to the findings of **Ansari (2000)** which was critical about the validity and applicability of CAPM in Indian.

Sinaee & Moradi (2010) analysed the risk-return association in Tehran stock market and found skewness to have a significant on returns when compared to kurtosis and postulated the existence of a non-linear relationship returns and beta.

The study of **Muradoglu, Gulnur and Sheeja (2008)** investigated the effect of leverage on stock returns and revealed the existence of negative relationship between firm's leverage and stock returns. Whereas, the study conducted by **Nerlove (1968)** revealed positive and significant relationship of both dividend and leverage with rate of return. It also found returns to have greater coherence with sales, retention of earnings and growth in earnings in the long run.

Salian (1999) investigated the financial sector and analysed risk management strategies. The results revealed that managing financial risk in a professional way is essential and when monitored periodically will yield satisfactory returns. **Nair and Joseph (1999)** studied the risks associated in equity investments and analysed the measures for reducing risks. In their opinion, the risk which is calculated previously can be mitigated to some extent and will reduce the loss that may occur while investing in corporate securities. The results of the study revealed that investors may be willing to accept those risks associated with equity investments but will not be in a position to accept those from fraudulent activities of corporate companies. Thus, Shareholder's capital must be utilized productively by corporate companies.

Salman (2002) investigated the Istanbul Stock Exchange and analysed whether information related to risk and return are translated to the market. The study provided empirical evidence which revealed a positive relationship between risk and return and asserted the validity of CAPM concept. He also found the existence of a similar positive association between risk and return in the Jordanian Capital Market.

Philippe Gregooire (2001) analysed the forecasting or predicting power of technical analysis on market indices. The results revealed a superior predictive power

of technical analysis on European indices. **Sangeetha and Dheeraj (2007)** analysed the risk return relationship and emphasized that financial risk had a greater relevance in significantly influencing the market compared to accounting information. **Bettman, Sault & Welch (2006)** assessed the explanatory power of both fundamental and technical analysis on share valuation and proposed an equity valuation model. The findings of the model reflected the complementary nature of fundamental and technical analysis, when integrated had a superior explanatory power.

1.3 Statement of the Problem

Corporate companies are facing cut throat competition in all spheres and it is not easy to sustain long and gain confidence from investors. In order to sustain in the longer run and cope up with the mounting challenges, they had to improve their efficiency and become socially responsible. Risks has a greater relativity to returns and only that firm which takes higher risk and challenges will have huge prospects to gain higher returns. In this context, even those who like to earn higher returns in stock market should have the ability to take risks. Indian capital markets are becoming more volatile nowadays and it is difficult for the investors to make informed decisions. Thus, there is an impending need for the investors to study the elements of risks, in particular systematic risk while investing in companies belonging to various sectors.

In this light, the following are the research questions framed in this study,

- i. How stable are the stocks of companies belonging to various sectors?
- ii. What is the systematic risk inherent in these stocks?
- iii. How much deviant are the returns of the selected companies from their average returns?
- iv. What is the level of coherence between the returns of these companies and that of the market?

1.4 Objectives

The primary objectives of the study are enumerated below:

- i. To analyze the Systematic risk & return of stocks in selected companies in BSESENSEX
- ii. To ascertain the level of coherence between the returns from the stocks of these companies and the market return.
- iii. To evaluate the volatility of these stocks during the study period (Apr 2011 – Mar 2016).

RESEARCH METHODOLOGY

The study is based on secondary data collected from BSE. The data on monthly market prices of top companies belonging to leading sectors like IT, banking, Metals, Consumer goods, Automobile, Pharmaceutical have been collected from BSE website (www.bseindia.com). In this context, the sample consists of six companies - TCS, HDFC, Coal India, ITC, Tata Motors, Sun Pharma listed in BSE-SENSEX. The stocks are chosen based on top market capitalization in BSE. The data was collected for a five-year period from April 2011 to March 2016.

RESULTS AND DISCUSSION

Table – 1: Analysis of Mean, Std. Deviation, Variance of Company's Stock Return and Market Return (2011-16)

Company Name	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Avg. Returns
TCS	60	-12.44	19.54	1.458	6.339	40.179	1.450
HDFC	60	-80.52	14.95	0.255	12.120	146.900	0.483
COAL INDIA	60	-16.61	27.24	0.015	7.947	63.156	0.236
ITC	60	-9.91	12.46	1.118	5.090	25.912	1.261
SUN PHARMA	60	-44.07	16.25	1.534	9.338	87.195	1.492
TATA MOTORS	60	-78.95	36.55	0.061	16.213	262.872	0.061
BSE-SENSEX	60	-8.93	11.25	0.545	4.601	21.168	0.546

The standard deviation and variance is a measure of risk. It measures how volatile the company's stock return along with its market returns. Table 3.1 shows ITC, TCS, Coal India, Sun Pharma having less variance due to low volatility in their stock returns. HDFC and Tata Motors have shown highest rates of volatility compared to other selected companies. In this context, the average returns of Sun Pharma, ITC and TCS have been relatively higher compared to other companies. Tata Motors has not been able to provide satisfactory returns to their shareholders.

Table – 2: Analysis of Coefficient of Correlation and R-Square of Company's Stock Return and Market Return (2011-2016)

Company Name	Co-efficient of Correlation (r)	R-Square	p Value
TCS	0.175	0.030	0.182
HDFC	0.499	0.249	0.000*
COAL INDIA	0.447	0.200	0.000*
ITC	0.478	0.229	0.000*
SUN PHARMA	0.175	0.030	0.182
TATA MOTORS	0.578	0.334	0.000*

* Denotes significance at 1% level

Table 3.2 shows that the significant relationship between market return and company's return during the study period in case of all the selected companies except TCS and Sun Pharma. The coefficient of correlation (r) of Tata Motors is 58%, the coefficient of determination (R²) between the monthly returns of Tata Motors and BSE-SENSEX is the highest with 0.33. It indicates that the percentage of variance explained by the market in the company's stock return being 33 percent. This depicts the proportion of systematic risk. Likewise, in case of HDFC, the co-efficient of correlation (r) is 50% and the coefficient of determination (R²) is 0.249, indicating the variance explained by the market in HDFC's stock return. Thus, the proportion of systematic risk is 25 percent which is undiversifiable. The co-efficient of correlation (r) is 48%, the coefficient of determination (R²) of ITC and the market is 0.229. It indicates variance explained by the market in ITC's stock return which is 23 percent. Thus, the proportion of systematic risk is 23 percent which is undiversifiable. In case of Coal India, the co-efficient of correlation (r) is 45% and the coefficient of

determination (R^2) between the monthly returns and the market is 0.200. It indicates variance explained by the market in Coal India's stock return which is 20 percent. The proportion of systematic risk is 20 percent which is undiversifiable. It can be inferred that among the selected companies, TCS and Sun Pharma are relatively unaffected by the market and have an insignificant relationship with the market.

Fig – 1: *Movement of Average return of TCS and SENSEX during the Study Period (2011-16)*

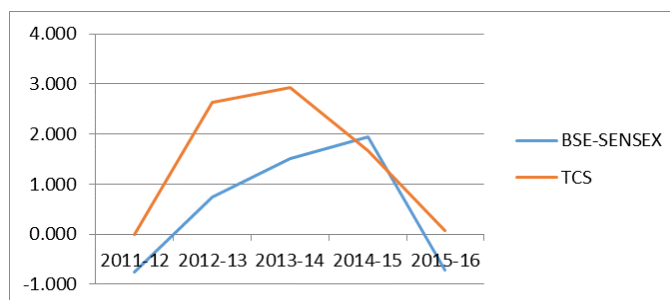


Fig – 2: *Movement of Average return of HDFC and SENSEX during the Study Period (2011-16)*

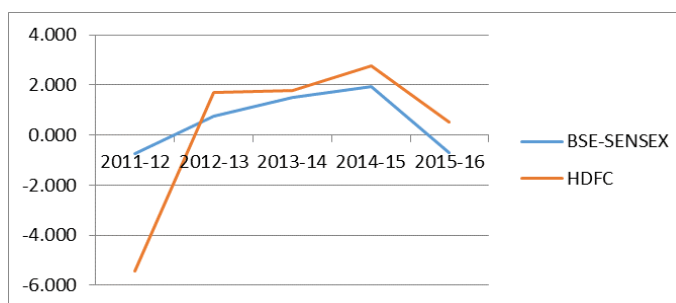


Fig – 3: *Movement of Average return of Coal India and SENSEX during the Study Period (2011-16)*

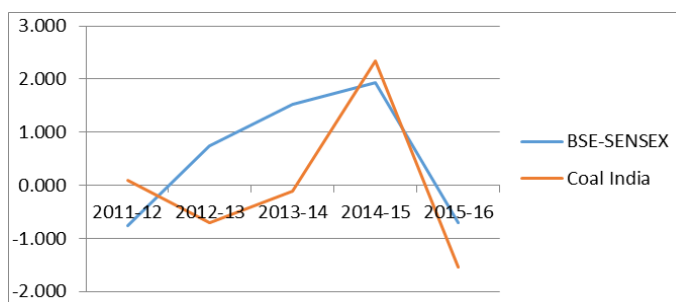


Fig – 4: *Movement of Average return of ITC and SENSEX during the Study Period (2011-16)*

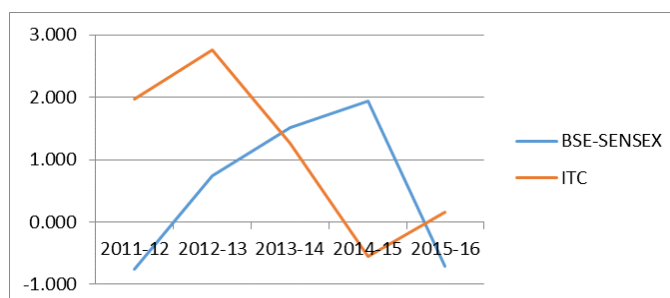
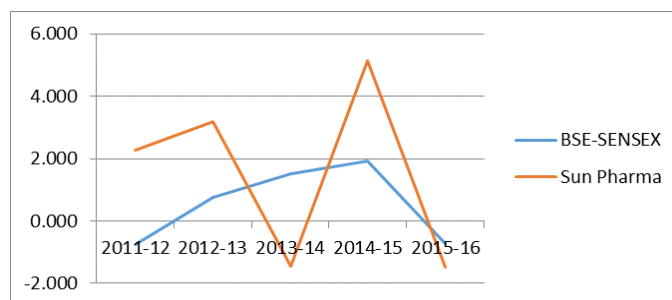
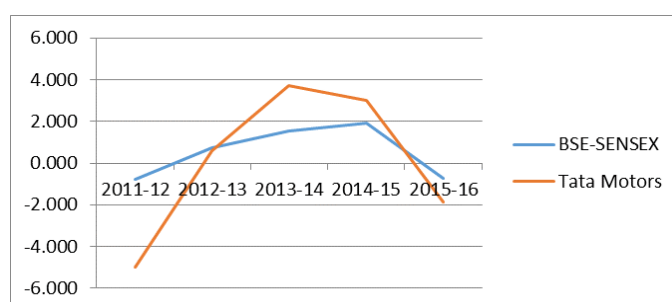


Fig – 5: Movement of Average return of ITC and SENSEX during the Study Period (2011-16)**Fig – 6:** Movement of Average return of Tata Motors and SENSEX during the Study Period (2011-16)**Table – 3:** Analysis of Beta of the Selected Companies in BSE-SENSEX

Company Name	Beta
TCS	-0.1830
HDFC	1.3144
COAL INDIA	0.7728
ITC	0.5291
SUN PHARMA	0.3542
TATA MOTORS	-0.4641

HDFC has a beta of 1.3144 based on the monthly returns during April 2011 to July 2016, which shows the slope of the monthly returns in relation to market returns (BSE Sensex returns). A beta of 1.3144, which is more than 1, indicates that the fluctuations in returns from the shares of the company are more than the market. A beta greater than 1 indicates that the security's price is theoretically more volatile than the market. The beta of Coal India is 0.7728, ITC is 0.5291 and Sun Pharma is 0.3542 which are less than 1 indicating that the security's price is theoretically less volatile than the market. Whereas, the beta of TCS is -0.1830 and Tata Motors is -0.4641 which is negative indicates that these have an inverse relationship with the market.

CONCLUSION

The study was helpful to understand the share price movements, variations, and volatility of various sector stocks listed in the BSESENSEX. It can be inferred that stock returns of Tata Motors and Coal India have been unstable during the study period. It can be

attributed to their significant relationship with the market as depicted by higher coefficient of correlation values. Based on the level of systematic risk inherent in the stocks of the selected companies, Tata Motors, HDFC, Coal India and ITC have greater proportion of systematic risk and are more volatile. Based on the beta values of these companies, HDFC has a beta of more than 1 which implies the more proportional relationship with the market and hence more aggressive in nature. The beta of TCS and Sun Pharma has postulated negative values which imply relatively inverse relationship with the market and are less volatile. Thus, it can be concluded that TCS and Sun Pharma have provided relatively higher returns to their shareholders during the study period and are less volatile. The relationship between the individual company's returns and market returns will provide a benchmark to investors to make informed decisions while investing in stocks belonging to various sectors in the long run.

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